REMARKS

Claims 1-9, 11-14 and 16-25 are all the claims presently pending in the application. Claims 2, 5, 13, 17, and 19-21 have been amended to more clearly define the invention. Claims 1, 16, 20 and 23-24 are independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicants also note that, notwithstanding any claim amendments herein or later during prosecution, Applicants' intent is to encompass equivalents of all claim elements.

Claims 1-9, and 11-14 stand rejected under 35 U.S.C. § 112, first paragraph. Claims 2-5, 7, 13, 19, and 21-22 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 1-9, and 11-14 stand rejected under 35 U.S.C. § 102(e), as being anticipated by the Kazama et al. reference (U.S. Patent No. 6,111,580).

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

A first exemplary embodiment of the claimed invention, as defined by independent claim 1, is directed to a method of enabling a computer system to recognize specific actions of a user. The method includes capturing a first image of a user within a first predetermined target area in a video stream, displaying the user image including the first predetermined target area, determining that a state of the first predetermined target area is to be associated with a first computer event,

associating the first computer event with the state of the first predetermined target area in response to the determination, and storing information in a memory device regarding the association.

A second exemplary embodiment of the claimed invention, as defined by independent claim 16, is directed to a method of using a computer system having an image capture system that displays an image of a user on a display screen. The method includes enabling the computer system to associate a state of a first predetermined target area within a video stream with a first computer event, capturing the state of the first predetermined target area with the image capture system, and performing the first computer event in response to the state of the first predetermined target area being captured by the image capture system.

A third exemplary embodiment of the claimed invention, as defined by independent claim 20, is directed to a system that associates a specific user action with a first computer command. The system includes an image capture system that captures a first image of a user within a video stream including a first predetermined target area. The state of the first predetermined target area indicates the specific user action. The system further includes an image display system that displays the first image captured by the image capture system on a display screen, and a computer system that recognizes a state of the first predetermined target area and associates the state of the first predetermined target area with the first computer command.

A fourth exemplary embodiment of the claimed invention, as defined by independent claim 23, is directed to a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for training a system

to recognize specific user actions. The method includes capturing a first image of a user within a first predetermined target area, displaying the first image including the user image in the first predetermined target area, determining that a state of the first predetermined target area is to be associated with a first computer event, associating the first computer event with the state of the first predetermined target area in response to the determination, and storing information in a memory device regarding the association.

A fifth exemplary embodiment of the claimed invention, as defined by independent claim 24, is directed to method of enabling a computer system to recognize specific actions of a user. The method includes associating a first computer event with a state of a first predetermined target area, and storing information in a memory device regarding the association.

Conventional computers that have been adapted for users having physical disabilities have included devices like a touch screen or a single-switch device. However, these computers have distinct disadvantages. First, they rely upon physical devices that require careful setup for the user. Second, they are prone to damage and/or vandalism. Third, they do not allow the full range of expression needed to effectively interact with computer applications.

Some conventional computer systems are capable of interacting with users by recognizing gestures using cameras. However, these systems are generally very limited in the type of gestures that they are capable of recognizing, they require extensive customization for each user, they are not robust in the face of environmental conditions, they are not reliable or they require extensive user training.

By contrast, the present invention provides a robust, flexible and user friendly method

and apparatus which allows a computer to recognize a wide range of user actions using a camera. In an exemplary embodiment of the present invention, a computer includes a camera that receives a video stream and the computer is capable of determining whether a state of a predetermined target area within the video stream corresponds to a computer event based upon an association between the state of the predetermined target area and the computer event.

In this manner, the present invention does not require a gesture recognition system and, therefore, is not limited by the type of gestures that are capable of being recognized, does not require extensive customization for each user, is robust in the face of environmental conditions, is reliable and does not require extensive user training.

II. THE § 112, FIRST PARAGRAPH REJECTION

The Office Action alleges that the present specification fails to comply with the written description requirement. In particular, the Examiner alleges that "capturing a first image of a user within a first predetermined target area in a video stream" was not described in the specification. While Applicants respectfully submit that one of ordinary skill in the art is enabled to practice the claimed invention as described by the specification, this Amendment amends the specification to include the terms "predetermined" and "video stream" to further clarify for the Examiner how the claim language corresponds to the written description in the specification.

Applicants respectfully request withdrawal of this rejection.

III. THE 35 U.S.C. § 112, SECOND PARAGRAPH REJECTION

The Examiner alleges that claims 2-5, 7, 13, 19, and 21-22 are indefinite. While Applicant submits that such would be clear to one of ordinary skill in the art taking the present Application as a whole, to speed prosecution claims 2, 5, 17, and 19-20 have been amended in accordance with Examiner Luu's very helpful suggestions.

Regarding claim 22, the Examiner alleges asks whether "said association" on line 6 refers to line 4 in claim 22 or line 6 of claim 21 or line 10 of claim 20. Claim 22 recites "said association of said state of said second predetermined target area with said second computer command" on lines 6-7. Claims 20 and 21 do not recite a "second" predetermined target area and a "second" computer command. Rather, only claim 22 recites these features. Therefore, Applicants respectfully submit that claim 22 is not indefinite.

In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

IV. THE PRIOR ART REJECTION

Regarding the rejection of claims 1-9, 11-14, and 16-25, the Examiner alleges that the Kazama et al. reference teaches the claimed invention. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by the Kazama et al. reference.

In the "Response to Arguments" section of the Office Action, "the Examiner disagrees that the Kazama (sic) reference does not teach/suggest a predetermined target area as recited in

the amended claims. For this reason, the amended claims are being considered in light of different interpretations and citations from Kazama as detailed in the rejection above."

However, contrary to the Examiner's allegations, not only does the Kazama et al. reference not teach or suggest a predetermined target area, but the Examiner did not provide "different interpretations and citations." Rather, the Examiner cites exactly the same portion of the Kazama et al. reference that was cited by the previous Examiner in an Office Action dated September 19, 2002.

The September 19, 2002 Office Action alleged that the claims were anticipated by the Kazama et al. reference and cited Figures 13 and 14, and col. 9, lines 21-41. This citation is exactly the same citation that is provided by Examiner Luu in the currently outstanding Office Action. Therefore, contrary to the Examiner's allegation, the Examiner did not consider the amended claims in light of different interpretations and citations.

Further, the Examiner has not indicated how the interpretations are any different than previous interpretations. Indeed, the Applicants submit that the only possible way that the Examiner's interpretations can be any different is to ignore the plain language of the claims. Therefore, should the Examiner contend that the interpretations are "different," Applicants respectfully request that the Examiner explain how the interpretations are "different" from previous interpretations.

As explained previously, the Kazama et al. reference clearly does not teach or suggest the features of the present invention including a predetermined target area. This feature is important because by using a predetermined target area the present invention does not require a gesture

recognition system and, therefore, is not limited by the type of gestures that are capable of being recognized, does not require extensive customization for each user, is robust in the face of environmental conditions, is reliable and does not require extensive user training.

The Examiner alleges that the "*hand area 81 being a predetermined target area*" (emphasis Examiner's). However, contrary to the Examiner's allegation the hand area 81 that is disclosed by the Kazama et al. reference is not a predetermined target area.

Rather, the gesture recognition section 43 of the Kazama et al. reference includes a hand area detection section 433 (Fig. 12 and col. 9, lines 16-20). The hand area detection section 433 receives a digital image from the TV camera 431 via the A/D conversion section 432. "The hand area detection section 433 detects hand area 81 from the image according to color information of the user's hand." (Emphasis added, col. 9, lines 25-28). In other words, the system disclosed by the Kazama et al. reference requires a hand area detection system, because the user's hand may be located anywhere within the image received from the camera 431. Therefore, the system disclosed by the Kazama et al. reference does not include a predetermined target area. Rather, the system disclosed by the Kazama et al. reference is required to detect a hand area 81.

Moreover, the Kazama et al. reference discloses a system that uses a gesture recognition system and, as a result, is subject to all of the problems that were described above and in the present specification. In particular, because the present invention provides a predetermined target area, the present invention obviates the necessity for any gesture recognition system and, therefore, is not limited by the type of gestures that are capable of being recognized, does not

require extensive customization for each user, is robust in the face of environmental conditions, is reliable and does not require extensive user training.

Indeed, the Examiner admits that the Kazama et al. reference must detect the initial positions of the hand in order to determine the act of a toss or a sweep at the top of page 5 of the outstanding Office Action. Clearly, the Kazama et al. reference must detect the position of the hand because this position is not a predetermined target area.

In stark contrast, the present invention provides a predetermined target area and responds to the state of the image from the predetermined target area. The present invention does not respond to the state of an image from any area outside of the predetermined target area.

Regarding claims 3 and 4, the Examiner indicates that the Kazama et al. reference discloses using color. However, in contrast to the present invention, the Kazama et al. reference uses color to locate some body part of the user within the image (e.g. hand or face), or to determine the shape of the hand by extracting the color of the balls from the image in accordance with the registration of the color.

In stark contrast, claims 3 and 4 relate a color only within a predetermined target area. In other words, an exemplary embodiment of the present invention is trained so that when, for example, a user reaches into a predetermined target area, the system recognizes the change of color of the image within the predetermined target area and perform an appropriate response.

Therefore, the Kazama et al. reference does not teach or suggest each and every element of the claimed invention. Thus, the Examiner is respectfully requested to withdraw this rejection of claims 1-9, 11-14, and 16-25.

V. FORMAL MATTERS AND CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 1-9, 11-14 and 16-25, all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

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